

(Part-I)

2. Write short answers to any FOUR (4) questions: (8)

(i) How do we use guesses to define a problem?

Ans We try to guess the unknown information through appropriate guesses. These guesses may be bases upon our past experiences.

(ii) On what thing does the selection of a strategy depend upon?

Ans The selection of a strategy depends upon the problem. It is quite important that one strategy maybe more suitable to implement a solution than the other one. Very specifically, the selection of the strategy depends upon the nature of a problem.

(iii) What is decision making?

Ans To determine whether a statement is true or false, and taking appropriate steps accordingly, is called decision making.

(iv) Write advantages of flowchart.

Ans Following are the advantages of flowchart:

1. Easy to draw.
2. Easy to understand problem solving.
3. Easy to identify errors (if any).
4. Easy to observe flow from one step to the other.

(v) Define validation.

Ans Validation means to test whether the solution is correct or not. For example, if you are asked to give a solution for calculating compound interest, then validation means to know whether it is finding the correct compound interest or not. If a solution is verified, then it is validated with the help of test data as discussed in previous section.

(vi) What is non-volatile/secondary memory?

Ans A device which can hold data even if it is not connected to any power source, is called Non-Volatile Memory. The typica

examples for Non-Volatile Memory are hard drives, flash drives and memory cards installed in cell phones. Even if you turn off your PC, the data in your hard drive or flash drive stays intact.

3. Write short answers to any FOUR (4) questions: (8)

(i) Define Boolean proposition. Give two examples.

Ans A proposition is a sentence that can either be true or false. For example, the following sentences are propositions:

1. "Someone from our school can join Pakistani Cricket Team".

2. "I will get A+ grade in board exam".

(ii) Describe associative law of Boolean algebra.

Ans This law is for several variables. According to this law, there is no change in results if a grouping of expressions is changed. This law is quite same in case of AND and OR operators.

(a) $(A + B) + C = A + (B + C)$

(b) $(A \cdot B) \cdot C = A \cdot (B \cdot C)$

(iii) Differentiate between server and client.

Ans A server provides a service and a client gets that service.

(iv) Define mesh topology.

Ans Mesh topology connects all devices with each other through a direct link. As compared to ring topology, data may reach its destination quickly.

(v) What is client-server overuse?

Ans Installing more copies of the software than you have licenses for, is known as client-server overuse.

(vi) What are the trade secrets?

Ans Trade secrets are usually the secrets that are playing an important role for the success of a company. They have a lot of value and usefulness for the company.

4. Write short answers to any FOUR (4) questions: (8)

(i) Define encryption.

Ans Encryption is the process of encoding data in such a way that only authorised person can read it.

(ii) Write characteristics of a good password.

Ans A good password:

1. is at least eight characters long.
2. doesn't contain your user name, real name, kid's name or company name.
3. doesn't contain a complete word.
4. is significantly different from previous passwords.
5. contains uppercase letters, lowercase letters, numbers, and symbols.

(iii) What are singular tags?

Ans Some tags do not have closing tags and they are called singular tags or empty tags. They are simply written as <tagname>. For example,
 for line break, <hr> to insert a horizontal line.

(iv) How many types of list in HTML?

Ans There are four types of list in HTML.

(v) Define ordered list.

Ans An ordered list keeps each list item with an order number. If you change the order, the meaning of the whole list may also change. For example, if your teacher makes a list of students with respect to their marks then definitely order will matter.

(vi) Define colspan.

Ans To make a cell span more than one columns, colspan attribute is used.

(Part-II)

NOTE: Attempt any TWO (2) questions.

Q.5. Describe flowchart symbols through table.

(8)

Ans **Flowchart Symbols:**

Flowcharts explain a process clearly through symbols and text. They use special shapes to represent different types of actions or steps in a process. Lines and arrows show the flow of the steps. Table shows some of the most widely used symbols in flowcharts:

Symbol	Name	Description
→	Flow line	It is used to determine the flow of steps in a flowchart.
○	Terminal	It indicates start and end of a flowchart.
□	Process	It represents operations to change values.
◇	Decision	It shows a conditional operation that determines which one of the two paths to take. The operation is commonly a yes/no question or a true/false test.
[/\]	Input/Output	It indicates the input of data from user or displaying results to user.
○	Connector	If a flowchart doesn't fit on a page, then we use connector to connect parts of a flowchart on different pages.

Q.6. Convert $(110101111)_2$ to hexadecimal. (8)

Ans Convert $(110101111)_2$ to hexadecimal:

The groups in this binary number are given below where each group has maximum four binary digits.

110101111

The left most group in blue colour has only 1 binary digit and by adding 0s, we get:

000110101111

We replace each group with the respective hexadecimal and get:

1AF

So, $(110101111)_2 = (1AF)_{16}$

Q.7. Analyze the personal privacy and security concerns that arise with any use of computational systems. (8)

Ans With the advent of Internet, our computers are no longer stand-alone devices. In fact, now they are connected to millions of other computers in the world. Due to this connectivity, many security concerns also arise. Primarily, we want to secure our data according to the following three aspects:

1. Confidentiality:

It means that we want to keep our data as confidential. We do not want to share it with unintended persons.

2. Integrity:

It means that we want to keep the data correct. For example, we do not want that the website of our bank shows less account balance than it actually is.

3. Availability:

It means that we want to have access to the data when we want. If data is not available when needed, then in some cases it becomes useless.

All these aspects are important during the processing, storage and transmission of data in a computerized system.

Computation is a general term for any type of information processing that can be represented mathematically. For example, your grade in 9th class will be computed according to your marks in every subject.

In everyone's life, there is stunning growth of usage of computational systems. This fact is behind raising concerns about privacy.